

### **REMARKS**

This Amendment is submitted in reply to the Final Office Action dated May 23, 2003. Applicants respectfully request reconsideration and further examination of the patent application under 37 C.F.R. § 1.115.

Upon entry of the foregoing Amendment, Claims 1-5, 7-10, 12 and 25-35 are pending in the application. The amendments are believed to introduce no new matter, and their entry is respectfully requested. Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider and withdraw all outstanding rejections.

#### **Summary of the Examiner's Rejections**

Claims 1-4, 6-9, 12 and 24 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shukla (US 6,458,275) in view of Thurn (US 4,076,550).

Claims 5 and 10 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shukla (US 6,458,275) in view of Thurn (US 4,076,550) and in further view of Perlman (US 5,858,770).

Claim 25 was rejected under 35 U.S.C. 103(a) as being unpatentable over Shukla (US 6,458,275) in view of Thurn (US 4,076,550) and in further view of Merz (US 4,871,590).

Claims 26 was rejected under 35 U.S.C. 103(a) as being unpatentable over Shukla (US 6,458,275) in view of Thurn (US 4,076,550) and in further view of Perlman (US 5,858,770).

#### **Summary of Amendment**

Applicants have cancelled Claims 6 and 13-24 (without prejudice), amended Claims 1, 3-4, 7-9 and 25-26, and added Claims 27-35 to more particularly define the present invention.

#### **Examiner's Interview**

Applicant thanks Patricia Nordmeyer (Examiner) and Sandra Nolan (Primary Examiner) for the telephonic interview held with Applicant's Attorney William Tucker on July 16, 2003. The telephonic interview was non-conclusive and ended after William Tucker agreed to contact and ask one of the inventors to answer a question about the use of pyrolyzed glass and plasma treated polymeric material to make the claimed multiwell plate. The following question was then asked of Gregory Martin (co-inventor)--if by pyrolyzing the glass layer and plasma treating the polymer layer used to make the multiwell plate whether this created/freed silanol groups on the glass layer and created/freed reactive groups on the polymer layer which could then interact with the silane monomer that was added to the adhesive to further strengthen a bond between the adhesive and glass/polymer layers. Or, did the procedures of pyrolyzing the glass layer and

plasma treating the polymer layer only make it easier for the silane monomer and adhesive to interact with and stick to the glass/polymer layers without freeing/creating silanol groups or reactive groups on the treated glass/polymer layers themselves. Gregory Martin's response to this question is provided below.

**Remarks regarding § 103(a) rejections**

Applicants respectfully submit that amended independent Claim 1 is patentable over Shukla, Thurn, Perlman and/or Merz. The claimed invention as recited in amended independent Claim 1 (for example) follows:

1. A multiwell plate for use in assaying samples, comprising:  
a frame that forms sidewalls of at least one well, the frame being formed from a polymeric material;  
a layer that forms a bottom wall of the at least one well, the layer being formed from glass;  
said frame and said layer are attached and bound to one another by an adhesive mixed with a silane monomer that interacts with the adhesive, said frame and said layer in a manner which strengthens a bond between said frame and said layer;  
wherein said polymeric material was subjected to a process to create reactive groups that interact with the silane monomer in said adhesive to further strengthen the bond between said adhesive and said frame; and  
wherein said glass was subjected to a process to free silanol groups that interact with the silane monomer in said adhesive to further strengthen the bond between said adhesive and said layer (emphasis on the distinguishing limitations).

The teachings of Shukla, Thurn, Perlman and/or Merz differ significantly from the present invention as recited in Claim 1 in several respects. First, the amended independent Claim 1 recites a limitation where a frame that forms sidewalls of at least one well in the multiwell plate is made from a polymeric material which was subjected to a process to create reactive groups that interact with a silane monomer in an adhesive to further strengthen the bond between the adhesive and the frame. Shukla, Thurn, Perlman and/or Merz fail to teach the use of a frame made from a polymeric material that was subjected to a process to create reactive groups that interact with a silane monomer in an adhesive to further strengthen the bond between the adhesive and the frame. Secondly, the amended independent Claim 1 recites a limitation where a layer that forms a bottom wall of at least one well in the multiwell plate is made from glass which was subjected to a process to free silanol groups that interact with a silane monomer in an adhesive to further strengthen the bond between the adhesive and the layer. Shukla, Thurn, Perlman and/or Merz fail to teach the use of a layer made from

glass that was subjected to a process to free silanol groups that interact with a silane monomer in an adhesive to further strengthen the bond between the adhesive and the layer. Accordingly, Applicants respectfully submit that the aforementioned substantial differences between Shukla, Thurn, Perlman and/or Merz and the amended independent Claim 1 and dependent Claims 2-5 and 7 are indicative of the patentability of the present invention.

Applicants respectfully submit that amended independent Claim 8 and added independent Claims 27, 30 and 33 are patentable over Shukla, Thurn, Perlman and/or Merz. Independent Claims 8, 27, 30 and 33 recite a multiwell plate having an upper plate made from pyrolyzed glass or glass and a lower plate made from plasma treated polymeric material or polymeric material. In the Final Office Action, the Examiner stated that "it would have been obvious to one having ordinary skill in the art at the time of the invention was made to use pyrolyzed glass, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416." Applicants respectfully traverse this conclusory statement because there is a definite improvement over the state of the art that is not readily apparent when one uses pyrolyzed glass to make the lower plate of a multiwell plate. This improvement is brought about when pyrolyzed glass is used instead of regular glass because pyrolyzed glass is subjected to a pyrolysis process to free silanol groups that interact with a silane monomer in an adhesive to further strengthen the bond between the adhesive and the lower plate. The support for the amendments related to the pyrolyzed glass and the plasma treated polymeric material can be found in the specification at page 15, line 14 (for example):

"Pyrolysis at 350<sup>0</sup> C for 3 hours, of the glass lower plate 22 cleans the surface of bound contaminants freeing silanol groups for interaction with the enhanced adhesive. Cleansing the glass of contaminants also facilitates adhesion of cells in culture. As for the plastic upper plate 20, the plastic can be polystyrene which has been treated with a plasma to create reactive groups that interact with the silane monomer as it polymerizes in a way similar to the manner in which the silane monomer binds to the reactive (silanol) groups on the glass lower plate 22. It should be noted that the silane monomer increases the strength of the bond between the plastic upper plate 20 and the glass lower plate 22 without affecting the non-cytotoxic status of the adhesive."

In addition, Gregory Martin (co-inventor) cited this paragraph in the patent application when he answered the aforementioned question that was asked during the Examiner Interview. In particular, Gregory Martin indicated that the silanols on the glass surface are basically already there but are either buried under organic contaminants or are reacted with organic contaminants. When the glass is heated in ambient atmosphere as we describe in the patent application these contaminants oxidized/volatilized from the surface

including organics that may have reacted with the silanols, which hydrolize to free the silanol. The plasma treatment of the plastic part does not generate any silanol, but instead oxidizes the surface creating, among other things, hydroxyl groups which are capable of undergoing a condensation reaction with the silanols in the silane copolymer to give covalant coupling. In view of the foregoing amendments and remarks, Applicants respectfully submit that the aforementioned substantial differences between Shukla, Thurn, Perlman and/or Merz and the amended independent Claim 8 and added independent Claims 27 are indicative of the patentability of the present invention.

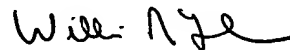
### Conclusion

Applicants respectfully submit that all of the stated grounds of rejections have been properly traversed, accommodated, or rendered moot. Accordingly, Applicants respectfully request reconsideration of all outstanding rejections and allowance of pending Claims 1-5, 7-10, 12 and 25-35.

In the event this Amendment does not place this application in condition for allowance, it is respectfully requested that the status of the prosecution be changed from FINAL to NON-FINAL because several important limitations to the Claims were not discussed in the Final Office Action namely: (1) plasma treated polymeric material (e.g., frame, upper plate); (2) pyrolyzed glass (e.g., layer, lower plate) that has reactive groups which interact with an additive (e.g., silane monomer) in an adhesive to strengthen a bond between the adhesive and the layer or lower plate of the multiwell plate (see previous Claims 4 and 8); and (3) plasma treated polymeric material (e.g., frame, upper plate) that has reactive groups which interact with an additive (e.g., silane monomer) to strengthen a bond between the adhesive and the frame or upper plate of the multiwell plate (see previous Claims 8 and 24).

Enclosed is a USPTO Credit Card Payment Form filled out for \$ 360.00 to cover the fees associated with the addition of independent Claims 27, 30 and 33 and dependent Claims 28-29, 31-32 and 34-35. If this is incorrect, the Commissioner is authorized to charge any fees which may be required for this paper to Deposit Account No. 50-1481.

Respectfully submitted,



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